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HEWLETT-PACKARD COMPANY			MENBERU, BENIYAM	
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Please find below and/or attached an Office communication concerning this application or proceeding.

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DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

On page 9, line 16, "resultant color image 36" should be "resultant color image

On page 13, line 14, "angle ?" should be "angle O".

Appropriate correction is required.

Drawings

2. The drawings are objected to because in Figure 4, step 316 should be labeled "CONVERT PRIMARY PRESERVED IMAGE FROM PRESENTATION COLOR SPACE TO PRINTING COLOR SPACE". Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either

"Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

- The following is a quotation of the second paragraph of 35 U.S.C. 112:
 The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
- 4. Claim 38 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
- 5. Claim 38 recites the limitation "image device" in line 15. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
- 7. Claims 1, 2, 3, 5, 19, 20, 21, 23 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5872895 to Zandee et al.

Regarding claims 1 and 19, Zandee et al disclose a method and program (column 4, lines 6-15) of mapping a color in a color image produced by an image device from a presentation color space to a destination color space, the method comprising the steps of:

receiving the color from the image device (Figure 1, reference 18; column 3, lines 12-24, 35-41);

determining whether color is to be preserved (column 5, lines 5-16, 39-46); converting the color from the presentation color space to the destination color space using a default profile if it is determined that color is to be preserved (column 1, lines 57-60; column 4, lines 15-20; column 5, lines 57-65); and converting the color from the presentation color space to the destination color space using a device-specific profile absent a determination that color is to be preserved (column 1, lines 57-60; column 4, lines 30-36; column 5, lines 47-55).

Regarding claims 2 and 20, Zandee et al teach all the limitations of claims 1 and 19 respectively. Further Zandee et al disclose the method of claim 1, wherein the image device is a monitor (Figure 1, reference 16; column 3, lines 1-10).

Regarding claims 3 and 21, Zandee et al teach all the limitations of claims 1 and 19 respectively. Further Zandee et al disclose the method of claim 1, wherein the presentation color space is RGB color space (column 1, lines 48-52; column 4, lines 15-20).

Regarding claims 5 and 23, Zandee et al teach all the limitations of claims 1 and 19 respectively. Further Zandee et al disclose the method and program of claim 1,

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which further comprises receiving the device-specific profile from the image device (column 4, lines 15-30).

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

- (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.
- 9. Claims 37-46 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Application Publication No. US 2002/0027603 A1 to Kuwata et al.

Regarding claims 37 and 42, Kuwata et al disclose a method and program (page 2, paragraph 30) for mapping a source image from a presentation color space to a printing color space comprising the steps of:

receiving the source image, the source image including colors defined in the presentation color space (Figure 7, step 210-220; page 6 paragraph 87);

converting the source image from the presentation color space to an intermediate color space accordance with a conversion function which accommodates preservation of one or more colors to produce a color-preserved image (Figure 7, step 220; page 7, paragraph 106; page 8, paragraph 108);

converting the color-preserved image back from the intermediate color space to the presentation color space to produce a color-preserved image in the presentation color space (Figure 7, step 230; page 6, paragraph 91); and

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converting the color-preserved image from the presentation color space to the printing color space (Figure 7, step 250; page 7, paragraph 95).

Regarding claims 38 and 43, Kuwata et al teach all the limitations of claims 37 and 42 respectively. Further Kuwata et al disclose the method of claim 37, wherein the image device is a monitor (page 8, paragraph 112).

Regarding claims 39 and 44, Kuwata et al al teach all the limitations of claims 37 and 42 respectively. Further Kuwata et al disclose the method of claim 37, wherein the presentation color space is RGB color space (Figure 7, input to step 220).

Regarding claims 40 and 45, Kuwata et al al teach all the limitations of claims 37 and 42 respectively. Further Kuwata et al disclose the method of claim 37, wherein the intermediate color space is CIE XYZ color space (Figure 7, input to step 230).

Regarding claims 41 and 46, Kuwata et al al teach all the limitations of claims 37 and 42 respectively. Further Kuwata et al disclose the method of claim 37, wherein the printing color space is CMYK color space (Figure 7, output of step 250).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

⁽a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

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11. Claims 4 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5872895 to Zandee et al in view of U.S. Patent No. 6226011 to Sakuyama et al.

Regarding claims 4 and 22, Zandee et al teaches all the limitations of claims 1 and 19 respectively. However Zandee et al does not disclose the method of claim 1, wherein the destination color space is CIE XYZ color space.

Sakuyama et al disclose the method of claim 1, wherein the destination color space is CIE XYZ color space (column 12, lines 1-12).

Zandee et al and Sakuyama et al are combinable because they are in the similar problem area of color printing.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the XYZ color space conversion of Sakuyama et al with the system of Zandee et al to implement XYZ based color printing.

The motivation to combine the reference is clear because Sakuyama et al disclose that color uniformity can be achieved using intermediate color space such as XYZ space (column 12, lines 13-15).

12. Claims 6, 7, 8, 10, 11, 12, 24, 25, 26, 28, 29, 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5872895 to Zandee et al in view of U.S. Patent 6529291 to Schweid et al.

Regarding claims 6 and 24, Zandee et al disclose a method/program of mapping an initial-formatted color produced by an image device in a presentation color space to a destination color space comprising the steps of:

receiving the initial-formatted color from the image device (Figure 1, reference 18; column 3, lines 12-24, 35-41);

converting the initial-formatted color from the presentation color space to the destination color space using a device-specific profile to produce a device-formatted color (column 1, lines 57-60; column 4, lines 15-20; column 5, lines 57-65; column 5, lines 65-67; column 6, lines 1-14);

converting the initial-formatted color from the presentation color space to the destination color space using a default profile to produce a default-formatted color (column 1, lines 57-60; column 4, lines 30-36; column 5, lines 47-55; column 5, lines 65-67; column 6, lines 1-14). However Zandee et al does not disclose producing a resultant color in the destination color space by weighted combination of the device-formatted color with the default-formatted color.

Schweid et al disclose producing a resultant color in the destination color space by weighted combination of the device-formatted color with the default-formatted color (Figure 3, reference 38, 32, 44, 46, 48; column 6, lines 15-21).

Zandee et al and Schweid et al are combinable because they are in the similar problem area of color printing.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the color weighting method of Schweid et al with the system of Zandee et al to implement color printing with multiple profiles.

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The motivation to combine the reference is clear because Schweid et al disclose

that using the system can produce smooth transition for printing across color

boundaries (column 4, lines 3-7).

Regarding claims 7 and 25, Zandee et al in view of Schweid et al teach all the

limitations of claims 6 and 24 respectively. Further Zandee et al disclose the method of

claim 6, wherein the image device is a monitor (Figure 1, reference 16; column 3, lines

1-10).

Regarding claims 8 and 26, Zandee et al in view of Schweid et al teach all the

limitations of claims 6 and 24 respectively. Further Zandee et al disclose the method of

claim 6, wherein the presentation color space is RGB color space (column 1, lines 48-

52; column 4, lines 15-20).

Regarding claims 10 and 28, Zandee et al in view of Schweid et al teach all the

limitations of claims 6 and 24 respectively. Further Zandee et al disclose the method of

claim 6, which further comprises receiving the device-specific profile from the image

device (column 4, lines 15-30).

Regarding claims 11 and 29, Zandee et al in view of Schweid et al teach all

the limitations of claims 6 and 24 respectively. Further Schweid et al disclose the

method of claim 6, wherein weighted combination of the device-formatted color with the

default-formatted color includes weighting the device-formatted color relative to the

default-formatted color (The weighting function of Schweid et al can be applied to the

system of Zandee et al in view of Schweid et al to implement weighing of the two

formatted color data (column 6, lines 34-43).).

Regarding claims 12 and 30, Zandee et al in view of Schweid et al teach all the limitations of claims 6 and 24 respectively. Further Schweid et al disclose the method of claim 6, wherein weighted combination of the device-formatted color with the default-formatted color involves weighting the device-formatted color and the default-formatted color based on proximity to a to-be-preserved color (column 6, lines 14-55; The neutral tag for a pixel as taught by Schweid et al is used to determine the weight.)

13. Claims 9, 16, 17, 18, 27, 34, 35, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5872895 to Zandee et al in view of U.S. Patent 6529291 to Schweid et al further in view of U.S. Patent No. 6226011 to Sakuyama et al.

Regarding claims 9 and 27, Zandee et al in view of Schweid et al teach all the limitations of claims 6 and 24 respectively. However Zandee et al in view of Schweid et al does not disclose the method of claim 6, wherein the destination color space is CIE XYZ color space.

Sakuyama et al disclose the method of claim 6, wherein the destination color space is CIE XYZ color space (column 12, lines 1-12).

Zandee et al, Schweid et al, and Sakuyama et al are combinable because they are in the similar problem area of color printing.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine XYZ color space conversion of Sakuyama et al with the color print system of Zandee et al in view of Schweid et al to implement XYZ based color printing.

The motivation to combine the reference is clear because Sakuyama et al disclose that color uniformity can be achieved using intermediate color space such as XYZ space (column 12, lines 13-15).

Regarding claims 16 and 34, Zandee et al in view of Schweid et al teach all the limitations of claims 6 and 24 respectively. Further Zandee et al Schweid et ál further in view of Sakuyama et al disclose the method of claim 6, wherein weighted combination of the device-formatted color with the default-formatted color is accomplished in accordance with the equation:

c * [X, Y, Z]_{DEVICE} + (1-c) * [X, Y, Z]_{DEFAULT} => [X,Y,Z]_{RESULTANT}
wherein c is a weighting factor, and wherein [X,Y,Z]_{DEVICE} is the device-formatted
color, wherein [X,Y,Z]_{DEFAULT} is the default-formatted color, and wherein
[X,Y,Z]_{RESULTANT} is the resultant color (Schweid et al. column 6, lines 40-59; Sakuyama
et al. column 12, lines 1-12).

Regarding claims 17 and 35, Zandee et al in view of Schweid et al further in view of Sakuyama et al teach all the limitations of claims 16 and 34 respectively. Further Schweid et al disclose the method of claim 16, wherein c approaches 0 as the initial-formatted color approaches a to-be-preserved color (column 7, lines 5-16).

Regarding claims 18 and 36, Zandee et al in view of Schweid et al further in view of Sakuyama et al teach all the limitations of claims 16 and 34. Further Schweid et al disclose the method of claim 16, wherein combination of c and (1-c) produce unity (column 6, lines 35-43).

14. Claims 13, 15, 31, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5872895 to Zandee et al in view of U.S. Patent 6529291 to Schweid et al further in view of U.S. Patent Application Publication No. US 2002/0075491 A1 to Bares.

Regarding claims 13 and 31, Zandee et al in view of Schweid et al teach all the limitations of claims 12 and 30 respectively. However Zandee et al in view of Schweid et al does not disclose the method of claim 12, wherein proximity to the to-be-preserved color is determined based on hue angle of the initial-formatted color.

Bares disclose the method of claim 12, wherein proximity to the to-be-preserved color is determined based on hue angle of the initial-formatted color (page 2, paragraph 26).

Zandee et al, Schweid et al, and Bares are combinable because they are in the similar problem area of color printing.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the hue-angle based color system of Bares with the system of Zandee et al in view of Schweid et al to implement hue-angle based color preservation.

The motivation to combine the reference is clear because Bares teaches that hue angles can be used to determine neutral colors (page 2, paragraph 26).

Regarding claims 15 and 33, Zandee et al in view of Schweid et al further in view of Bares teach all the limitations of claims 13 and 31. Further since Bares relates hue angle to color detection and Schweid et al relates neutral color value to weight

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value (column 6, lines 28-35) the method wherein hue angle is related to a weighting factor by a mathematical function can be achieved.

15. Claims 14 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5872895 to Zandee et al in view of U.S. Patent No. 6529291 to Schweid et al further in view of U.S. Patent Application Publication No. US 2002/0075491 A1 to Bares further in view of U.S. Patent No. 5619347 to Taniguchi et al.

Regarding claims 14 and 32, Zandee et al in view of Schweid et al further in view of Bares teach all the limitations of claims 13 and 31. However Zandee et al in view of Schweid et al further in view of Bares does not disclose the method of claim 13, wherein the hue angle is related to a weighting factor by a look-up table.

Taniguchi et al disclose method wherein the hue angle is related to a weighting factor by a look-up table (Figure 4, reference 39, 40; column 22, lines 35-50)

Zandee et al, Schweid et al, Bares, and Taniguchi et al are combinable because they are in the similar problem area of color printing.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the hue-angle lookup table of Taniguchi et al with the color printing system of Zandee et al in view of Schweid et al further in view of Bares to implement efficient method for printing with color reservation.

The motivation to combine the reference is clear because a lookup table provides for a fast and efficient method to find weight value depending on hue angle.

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16. Claims 47-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5872895 to Zandee et al in view of U.S. Patent No. 6529291 to Schweid et al further in view of U.S. Patent Application Publication No. US , 2002/0027603 A1 to Kuwata et al.

Regarding claim 47, Zandee et al disclose a color management system comprising:

an image device configured to present an initial-formatted color image defined in a presentation color space (column 4, lines 16-19; Figure 1, reference 18); a print processor configured to receive the initial-formatted color image from the image device (column 2, lines 65-67; column 3, lines 1-3; Figure 1, reference 12), to convert the initial-formatted color image from the presentation color space to a destination color space using a device-specific profile to produce a device-formatted color image (column 1, lines 57-60; column 4, lines 15-20; column 5, lines 57-65; column 5, lines 65-67; column 6, lines 1-14), to convert the initial-formatted color image from the presentation color space to the destination color space using a default profile to produce a default-formatted color image (column 1, lines 57-60; column 4, lines 30-36; column 5, lines 47-55; column 5,

lines 65-67; column 6, lines 1-14). However Zandee et al does not disclose a system

a) to produce a resultant color image in the destination color space by weighted

combination of the device-formatted color image with the default-formatted color image

- b) to convert the resultant color image from the destination color space to the presentation color space to produce a color-preserved color image in the presentation color space,
- c) and to convert the color-preserved color image from the presentation color space to a printing color space;
- d) and a print engine configured to print the color-preserved color image in the printing color space.

Schweid et al disclose a system to

a) produce a resultant color image in the destination color space by weighted combination of the device-formatted color image with the default-formatted color image (Figure 3, reference 38, 32, 44, 46, 48; column 6, lines 15-21).

Kuwata et al disclose a system to

- b) to convert the resultant color image from the destination color space to the presentation color space to produce a color-preserved color image in the presentation color space (Figure 7, step 230; page 6, paragraph 91).
- c) and to convert the color-preserved color image from the presentation color space to a printing color space (Figure 7, step 250; page 7, paragraph 95);
- d) and a print engine configured to print the color-preserved color image in the printing color space (Figure 7, after step s250; page 7, paragraph 95).

Zandee et al, Schweid et al, and Kuwata et al are combinable because they are in the similar problem area of color printing.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the color weight method of Schweid et al and the color conversion of Kuwata et al with the system of Zandee et al to implement color conversion with multiple profiles for color printing.

The motivation to combine the reference is clear because Schweid et al disclose that using the system can produce smooth transition for printing across color boundaries (column 4, lines 3-7) and Kuwata et al discloses an image adjustment which is performed after converting back to presentation color space (page 6, paragraph 93).

Regarding claim 48, Zandee et al in view of Schweid et al further in view of Kuwata et al teach all the limitations of claim 47. Further Zandee et al disclose the system of claim 47, wherein the image device is a monitor (Figure 1, reference 16; column 3, lines 1-10).

Regarding claim 49, Zandee et al in view of Schweid et al further in view of Kuwata et al teach all the limitations of claim 47. Further Zandee et al disclose the system of claim 47, wherein the presentation color space is RGB color space (column 1, lines 48-52; column 4, lines 15-20).

Regarding claim 50, Zandee et al in view of Schweid et al further in view of Kuwata et al teach all the limitations of claim 47. Further Kuwata et al disclose the system of claim 47, wherein the destination color space is CIE XYZ color space (Figure 7, input to step 230).

Regarding claim 51, Zandee et al in view of Schweid et al further in view of Kuwata et al teach all the limitations of claim 47. Further Zandee et al disclose the

system of claim 47, which further comprises receiving the device-specific profile from the image device (column 4, lines 15-30).

Regarding claim 52, Zandee et al in view of Schweid et al further in view of Kuwata et al teach all the limitations of claim 47. Further Kuwata et al disclose the system of claim 47, wherein the printing color space is CMYK color space (Figure 7, output of step 250).

Other Prior Art Cited

- 1. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
 - U.S. Patent No. 5963201 to McGreggor et al disclose color processor.
 - U.S. Patent No. 6137595 to Sakuyama et al disclose color conversion.
 - U.S. Patent No. 6075888 to Schwartz disclose color profile generation.
 - U.S. Patent No. 6377355 to Kumada disclose display for color gamut.
- U.S. Patent Application Publication No. US2002/0029715 A1 to Ogatsu et al disclose color conversion.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Beniyam Menberu whose telephone number is (571) 272-7465. The examiner can normally be reached on 8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kimberly Williams can be reached on (571) 272-7471. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the customer service office whose telephone number is (571) 272-2600. The group receptionist number for TC 2600 is (571) 272-2600.

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Patent Examiner

Beniyam Menberu

05/01/2005

KIMBERLY WILLIAMS

IPERVISORY PATENT EXAMINER